## CLAIMS

1. A sterile air trolley comprising a mobile casing having at least one air inlet in its lower region and a plurality of air outlets in its upper region, and enclosing impeller means operative to move air in through the at least one inlet, through filter means and out of the casing by way of the outlets, the upper region of the casing providing a substantially horizontal work surface, characterised in that the work surface has an upstanding boundary wall extending around its perimeter whereby the work surface and boundary wall form a tray, the boundary wall being hollow whereby the filtered air is directed into the boundary wall and is emitted through air outlets in the boundary wall facing inwardly over the work surface from opposing sides .

2. A sterile air trolley as claimed in claim 1, wherein the sterile/filtered air is directed across the work surface from all directions inwardly of the boundary wall and forms a continuously replenished rising layer of filtered air over the work surface within the sterile zone / volume defined by the boundary wall. The continuously replenished rising layer of filtered air prevents any inflow/ entrainment of contaminants into the sterile zone.

3. A sterile air trolley as claimed in claim 2, wherein compared to the prior configurations of sterile air trolley, the working surface in the apparatus of the present invention is protected by a sterile air layer that is robust while not significantly constricting the available work surface area or impeding access to it.

4. A sterile air trolley as claimed in claim 3, wherein the shape of the tray is suitably rectangular, with the boundary wall defining the four sides of the rectangle and wherein the filtered air is emitted inwardly over the work surface from all four sides.

5. A sterile air trolley as claimed in claim 4, wherein the trolley casing is in a modular form having a base unit housing the impeller and an upper unit comprising the tray-shaped work surface and boundary wall, the upper unit being readily demountable from and re- mountable to the base unit. The upper unit may suitably mount to the base unit in a push-fit or friction fit manner or have releasable fastening means. The compact nature of the upper unit enables it to be carried independently

of the trolley base unit and placed in a sterilising facility such as an autoclave, sterilising by steam, radiant energy or other suitable means. Indeed, this opens up the possibility for the work surface of the trolley and the surgical instruments to be sterilised alongside each other to facilitate preparation of the equipment prior to a surgical operation.

6. A sterile air trolley as claimed in claim 5, wherein the sterilised surgical instruments are set out on the work surface of the upper unit and sealed in by a film, foil or lid of barrier material that is mounted above the work surface. A hinged or detachable lid is preferred but a barrier foil may, for example, be stretched over the top of the work surface at the level of the upper edge of the boundary wall and be adhered to the boundary wall by releasable means to enable access to the surgical instruments at the start of the operation.

7. A sterile air trolley as claimed in claim 6, wherein the height of the boundary wall is slightly greater than the height of the any of the instruments or other items placed flat on the work surface of the tray in order to fully enshroud those instruments. Furthermore, for a typical surgical tray of approximately 500mm x 700mm in area, it is appropriate to have a minimum height of boundary wall of the order of 90mm. The height limits are suitably measured as the height of the wall that is provided with air outlets.

8. A sterile air trolley as claimed in claim 7, wherein an optimal maximum height for this area of tray work surface is of the order of 200 to 300mm to maintain the blanket of sterile air without greatly increasing the capacity and power consumption of the impeller.

9. A sterile air trolley as claimed in claim 8, wherein a preferred rate of flow of air from the outlets is of the order of 0.4 to 0.5 meters per second, and suitable no less than 0.35 meters per second. This lower limit of flow rate is appropriate to prevent the thermal environment surrounding the trolley, including any convection air-flow, from disrupting the air blanket formed over the work surface of the tray. The upper limit helps to restrict entrainment.

10. A sterile air trolley as claimed in claim 9, wherein that part of the boundary wall comprising the air outlets is in the form of a mesh or is densely perforated with

many substantially uniformly distributed apertures to provide a substantially uniform flow of air through the boundary wall.

11. A sterile air trolley as claimed in claim 10, wherein the construction of the part of the boundary wall comprising the outlets is suitably such as to provide a pressure drop of the order of at least 10 pascals and suitably greater than 20 pascals and particularly preferably of the order of 30 – 50 pascals. In one preferred embodiment a mesh providing a 38 pascal drop is used.

12. A sterile air trolley as claimed in claim 11, wherein there is provided a sterile air cabinet comprising a casing having at least one air inlet in its lower region and a plurality of air outlets in its upper region, and enclosing impeller means operative to move air in through the at least one inlet, through filter means and out of the casing by way of the outlets, the upper region of the casing providing a substantially horizontal work surface, characterised in that the work surface has an upstanding boundary wall extending around its perimeter whereby the work surface and boundary wall form a tray, the boundary wall being hollow whereby the filtered air is directed into the boundary wall and is emitted through air outlets in the boundary wall facing inwardly over the work surface from opposing sides .

13. A sterile air trolley as claimed in claim 12, wherein there is provided a sterile air tray having a work surface with an upstanding boundary wall extending around its perimeter, the boundary wall being hollow whereby filtered air may be directed into the boundary wall and emitted through air outlets in the boundary wall facing inwardly over the work surface from opposing sides.